

# COST and MANAGEMENT

THE OFFICIAL JOURNAL OF  
THE CANADIAN SOCIETY OF  
COST ACCOUNTANTS & INDUSTRIAL ENGINEERS

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L. J. Brooks, R.I.A., Interim Secretary-Manager and Editor

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Members desiring 5 copies or more of a single issue may obtain them  
at 25 cents each.

## • EDITORIAL •

It is usually considered advisable by any new Management that certain reorganization changes should be made in the undertaking which has come under their control. While there is no thought of casting any reflection of any description on our late beloved and esteemed Editor, the writer is no exception to this rule. The revamping of our Magazine "Cost and Management", is a subject that has received a great deal of personal consideration.

The inserting of articles, written in the most part by Canadians, dealing directly with the different phases of Cost Accounting, General Accounting, and other allied subjects is a matter for immediate consideration. It is thought that the inclusion in the magazine of a section dealing with Tax Amendments, Government Wage Regulations, Factory Regulations and Labour Laws would be an important change which would be very acceptable to our members. The members of the Society will be encouraged to write articles for the magazine, and same will receive consideration from the Editor. A further suggested change is the setting up of a new cover for "Cost and Management".

It is believed that the Members can aid materially in the instituting of a new policy as outlined above, and comments, suggestions, and contributions will be greatly appreciated by the writer.

L.J.B.



## The Late Richard Dawson, R.I.A.

Secretary-Manager

The Canadian Society of Cost Accountants & Industrial Engineers.

Secretary-Treasurer

The Society of Industrial & Cost Accountants of Ontario.

Little did those of us who attended the Annual Meeting of the Canadian Society of Cost Accountants and Industrial Engineers held in the City of Quebec on June 30th, and July 1st, realize when Dick Dawson was taken so ill and the Doctor advised getting him home as quickly as possible, that the next time we would see our esteemed friend and councillor would be after he was called to his well earned rest.

Dick's whole life was wrapped up in the Society, considering it a very great honour to be its Secretary-Manager. His one aim was to build the Society so that it would be well known throughout the Dominion of Canada as an Association for the furtherance of Cost and Industrial Accounting and the welding together of persons interested in these professions.

The Canadian Society of Cost Accountants and Industrial Engineers have lost not only an efficient, conscientious and faithful official but a very loyal friend, and our heartfelt sympathy goes out to Mrs. Dawson and his sisters in the personal loss they have sustained.

E.J.L.

## A Tribute To The Late Richard Dawson

Dear Dick:—

There are lots of things we would like to say . . .

There are many things we could have said to Dick Dawson. We could have told him how much we really appreciated his honesty of purpose, his work, his friendly smile, his unstinting helpfulness and his willingness to do a job.

Some of us did not voice all that was within our hearts. Carefully worded sentences would not have been necessary—Dick would have known; he understood our kind of speech. There are many things we could have said to Dick Dawson.

"The ill-timed truth we might have kept—  
Who knows how sharp it pierced and stung?  
The word we had not sense to say—  
Who knows how grandly it had rung?"

Our society has lost a valued member—we have lost a friend.

"Loathing pretence, he did with cheerful will  
What others talked of while their hands were  
still."

THE COST AND MANAGEMENT INSTITUTE  
The Officers, Directors and Members  
THE COST AND MANAGEMENT  
INSTITUTE

## COST AND MANAGEMENT

### The President's Report

Presented at the Annual Meeting of the Canadian Society of Cost Accountants and Industrial Engineers Held at the Chateau Frontenac, Quebec City, June 30, 1944.

It is with a great deal of pleasure that I present this Report on the activities and affairs of the Society for the year ended April 30th, last.

The past year has been a period of great progress for our Society, of which we may all be justly proud. The following synopsis indicates sounds, steady growth in every phase of our activities, which should be an inspiration to us for the years that lie ahead.

#### Our War Effort

It is with great satisfaction we see that the armed forces of the Allies are now in position to push forward against the enemy on all fronts. Through the valiant efforts and glorious sacrifices of our own Army, Navy and Air Force and those of our Allies, we hope that another year may see victory and peace.

The Society may well be proud of the part which its members are playing in the war effort. As of April 30th, last, there are 105 members on active service, representing nearly ten percent of the total membership. Two members have paid the supreme sacrifice in the persons of Lieut W. S. Fry of Montreal, and Pilot Officer C. D. Hewson of Niagara Chapter. It is my intention to propose to the incoming Board of Directors that a suitable Roll of Honor, which shall be added to as further enlistments occur, be prepared and kept in the Head Office of the Society. Our best wishes go out to those who serve, and we pray that they may be spared to return to us soon.

And members at home are also serving. Many are employed by the Government on important war work, and most all others are directly or indirectly contributing greatly to the war effort.

In addition many have sons, daughters and other near relatives who are serving in the armed forces. Several have lost their loved ones, and to these we extend our deepest sympathy. I think we must in particular extend our regrets to our immediate past president, Mr. P. W. Wright, and Mrs. Wright, whose son recently lost his life serving in the Royal Navy.

#### Membership

During the year the membership of the Society has grown from 892 to 1145, an increase of 250, or approximately 29%. This increase has been most gratifying, particularly in respect of student membership, and it is a source of deep satisfaction to your Board of Directors that so many young men are availing themselves of the opportunity to study the courses offered by the Society and its affiliated organizations.

An analysis of membership by Chapters has been prepared and will be mailed to all Chapter Secretaries.

A summary of these figures is—

Senior Members .....	713
Student Members .....	327
On Active Service .....	105
Total .....	1,145

## COST AND MANAGEMENT

The breakdown by provinces is—

Quebec .....	254
Ontario .....	769
Alberta .....	85
Other .....	37
Total .....	1,145

This increase in membership was marked by the formation of two new Chapters—Bay of Quinte at Belleville, Ont., and at Calgary, Alberta. A very active group is operating here in this beautiful city of Quebec, and we expect will soon form a Chapter of their own as negotiations are now under way.

### Affiliated Societies

The highlights of the years' activities was the incorporation by Private Member's Bill of the Society of Industrial Accountants of Alberta, which now gives us three affiliated organizations with the power of granting educational degrees, namely—

Cost and Management Institute.

The Society of Industrial and Cost Accountants of Ontario.

The Society of Industrial Accountants of Alberta.

The Society's Chapter in B.C. is making excellent progress, and is expecting to have a membership of one hundred by December next and intends to apply for Provincial Charter at the next session of the B.C. legislature. In writing this report, I have before me the excellent annual reports for last year of Mr. Chas. P. Dumas, L.C.M.I., President of the Cost and Management Institute, and of Mr. Harold P. Wright, R.I.A., President of The Society of Industrial and Cost Accountants of Ontario, which both show amazing progress and success in all respects. On behalf of the Dominion Board, I wish to congratulate these gentlemen and all associated with them in producing such excellent results.

In connection with the securing of the Charter in Alberta, I desire to give recognition to Mr. J. A. Tupper of Edmonton for his splendid work, and to Mr. R. Dawson, our Secretary-Manager, and Mr. Harold P. Wright, who made special trips to the West and were of great assistance in the preparation and presentation of the Private Member's Bill.

### Chapter Activities

During my term of office it was my great pleasure to visit all Chapters in Eastern Canada except Ottawa and Fort William-Port Arthur. I deeply regret that it was not possible for me to visit all the Chapters. I cannot speak too highly of the consistently sound, thorough progress being made in every Chapter visited and of the enthusiasm, loyalty and high calibre of the chapter chairmen, officers and members. The reports I have received from time to time from the Chapters I was unable to visit make me sure that these remarks apply equally as well to them.

I would like to specifically refer to my visit to the new Bay of Quinte Chapter in Belleville where an enthusiastic group of over 35 were present, and to the splendid meeting in Quebec City where the C.G.A.'s and our members had a real get-together. It was also my extreme pleasure, through the kind invitation of Frere Stanislas, to address the Cost Accounting Class at Le Ecole Superieure de Commerce in Quebec City.

## THE PRESIDENT'S REPORT

I wish to thank the members of the various Chapters for the very kind receptions given me, and I shall continue to have happy memories of pleasant visits with good fellows.

### Educational

Mr. P. W. Wright, association chairman of our Educational Committee, will in his report tell of a phenomenal increase in the number of students writing examinations this year. This is only a reflection of the excellent work that has been done by the Provincial and Dominion educational committees. Each year finds us in better position to offer our study courses to an increasing number of students. Our object is better educational facilities and your committees have never lost sight of this goal. Our best thanks are tendered to Mr. Wright and also to Mr. Don Patton and Mr. Aleck Howey, who were the chairman of the Committees in Quebec and Ontario respectively, and to all who served so efficiently and diligently with them.

### Financial

Our Treasurer's report will show a small deficit again this year. This deficit was entirely caused by the publication of our first year book in place of the regular December issue of Cost and Management, as the extra cost of this year book was something over \$380.00, which more than represents our deficit. Since the end of the year there have been contributions by various Chapters toward the cost of this publication and more are expected. In view of the exceptional amount of work being done against future activities the financial showing is very satisfactory and our Secretary-Manager is to be congratulated on the results obtained from the disbursements made.

The financial reports of our affiliated organizations are also very gratifying and show a very sound and healthy condition. Chapter Treasurers also report good financial positions with good working capital.

The thanks of the Society are tendered to Mr. E. W. White and Mr. G. W. Fancy of the office of Wright Pounder & Co. for so graciously acting as auditors for last year.

### Future Prospects

Each year the opportunities offered to the Society for serving Canadian business continue to grow and grow. Young men and women in every class of business are beginning to recognize the advantages which our study courses offer them. The Universities are co-operating with us wholeheartedly. Government employment agencies recognize the qualifications which our degrees represent. It is expected that ours will be one of the accounting courses offered by the Government in the re-establishment of returned men and women. Industrial employers are seeking applicants holding the L.C.M.I. and R.I.A. degrees and recognize the need for accountants with the sound practical knowledge which the degree represents.

What does all this add up to? To the fact that we may conservatively expect a student membership over the next five to ten years running into not hundreds, but thousands, and we must be prepared to take care of their needs promptly and efficiently.

I might suggest that in the future our efforts in relation to speakers and to literature should run more to the field of cost accounting for com-

## COST AND MANAGEMENT

mmercial business, that is retail and wholesale trade, which seems to have been somewhat overlooked in the past in favour of manufacturing.

### General

My report would indeed be very lacking if reference were not made to the consistently good work being done by our Secretary-Manager, Mr. R. Dawson. His job is no easy one and the enthusiasm, vigor and thoroughness with which he has attacked the complicated problems of organization of provinces, chapters, courses, etc., has been largely responsible for our success. He accompanied me on nearly all my chapter visits and was always on hand to help me when I got into tight spots. His trip to Western Canada was extremely successful and we congratulate him on the splendid job he has accomplished.

I desire to tender the thanks of the Society to Cost and Management Institute and its Quebec group for its kind invitation to hold this meeting in this lovely, historic place, and for the very splendid reception which has been accorded us.

It has been a great honour and privilege to me to have acted as your Dominion President for the last year. I have made acquaintances and friendships which I will cherish. The success which has been ours could not have been accomplished without the wholehearted co-operation and support of all officers of the Society, which was given me beyond measure.

Respectfully submitted on behalf of the Officers and Directors.

H. M. HETHERINGTON,  
President.

COST AND MANAGEMENT



H. M. HETHERINGTON, R.I.A.

The Viceroy Manufacturing Co. Limited

Newly Elected President

The Society of Industrial & Cost Accountants of Ontario

COST AND MANAGEMENT

**Examination Results—1944**

COST AND MANAGEMENT INSTITUTE

In the 1944 Examinations of the Institute, the following students obtained pass standing in the subjects as listed:

Bookkeeping	Industrial Organization and Management
Boucher, A.	Archibald, J. M.
Jackson, G. R.	Boutin, A. E.
Paquette, A.	Brunelle, J.
Accounting	Cardinal, R.
Boucher, A.	Chislett, R. A.
Jackson, G. R.	Davies, V.
Fundamentals of Cost Accounting	Deschenes, J.
Bouliane, L.	Gilbert, L. V.
Carphin, G. W. C.	Lagadec, F. J.
Danson, E. E.	Wood, B. F.
Deighton, D. C.	Fortier, J. E.
Dubuc, L. J.	Gagnon, J. P.
Jackson, G. R.	Kirouac, Sarto
Lavoie, P. E.	Pare, Jacques
Mills, A. P.	Robitaille, Gaston
Nose, R. H.	
Ouellette, R. P.	Industrial Legislation
Paquette, A.	Fortier, J. E.
Huppert, Dr. Geo.	Kirouac, Sarto
Fortier, J. E.	Pare, Jacques
Pare, Jacques	
Robitaille, Gaston	
Advanced Cost Accounting	
Archibald, J. M.	
Barclay, C. K.	
Blouin, J. A.	
Boutin, A. E.	
Brunelle, J.	
Cardinal, R.	
Davies, V.	
Deschenes, J.	
Gilbert, L. V.	
Fortier, J. E.	
Kirouac, Sarto	
Pare, Jacques	
Robitaille, Gaston	
Cost Accounting Thesis	
Norris, J.	
Faulds, E. K.	

## **SECRETARY-MANAGER**

**for Dominion-Wide  
Cost and Industrial  
Accounting Society**

Permanent position with good salary for man between ages of thirty and fifty, who has a good education and cost and accounting experience. Must have pleasing personality, ability to organize and some knowledge of journalism preferred.

War workers ineligible.

Apply nearest

**Employment and Selective Service Office**  
Refer H.O. 1360

COST AND MANAGEMENT

## New Members

### Toronto

G. E. A. Rose, Research Enterprises Ltd., Leaside.  
E. J. Ellis, International Business Machines Co. Ltd.

### Hamilton

Douglas H. McAlpine, The Halliday Co. Ltd., Burlington.

### Niagara

N. C. Loney, Atlas Steels Ltd., Welland.

### Non-Resident

H. Dudley Ingram, H. Dudley Ingram & Co., Melbourne, Australia.

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## Back Numbers Wanted

The following back numbers of Cost and Management are urgently required:

August, 1930

May, 1931

September, 1930

June, 1932

November, 1930

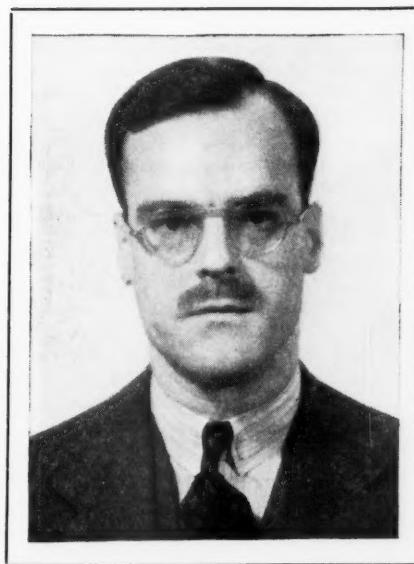
August, 1932

Any member who can spare any of the issues listed is urged to mail same immediately to the Secretary.

### LIBRARY BOOKS ON LOAN

ALL MEMBERS WHO, AT THE PRESENT TIME,  
HAVE LIBRARY BOOKS ON LOAN, AND WHICH  
HAVE BEEN OUT OVER THE USUAL 30-DAY  
PERIOD, ARE ASKED TO RETURN SAME TO THE  
OFFICE AS SOON AS POSSIBLE.

COST AND MANAGEMENT



J. J. F. BANCROFT, L.C.M.I.

Jenkins Bros. Ltd.

Newly Elected President Cost and Management Institute

COST AND MANAGEMENT

**Examination Results—1944**

THE SOCIETY OF INDUSTRIAL AND COST ACCOUNTANTS  
OF ONTARIO

In the 1944 Examinations of the Society, the following students obtained pass standing in the subjects as listed:

ACCOUNTING I

J. M. Wilson .....	Hamilton
Miss M. M. Conner .....	Peterborough
G. N. Langhorne .....	Peterborough
H. Britten .....	Port Arthur
W. G. Johns .....	Mimico
S. W. Duxbury .....	Toronto
N. Starr .....	Toronto
M. Klyman .....	Toronto
S. H. Voisey .....	Toronto
Harvey Durst .....	Kitchener
T. G. Ballantyne .....	Toronto
H. D. Trumbell .....	Toronto
J. A. Hourigan .....	Toronto
C. C. Livingstone .....	Toronto
J. E. Hawkins .....	Huntsville
J. B. McKinnon .....	Galt
J. D. Lowry .....	London
A. B. Cousins .....	Wallaceburg
J. H. France .....	Windsor
G. W. Fancy .....	Hamilton
J. Bracewell .....	Hamilton
H. G. Simpson .....	Ottawa
H. H. Garfield .....	Vancouver
G. H. Croft .....	Hamilton
J. M. Borthwick .....	Hamilton
J. F. Hayes .....	Hamilton
C. R. Thomas .....	Hamilton
S. L. Heaton .....	Hamilton
J. C. Hutcheson .....	Hamilton
T. Yoshida .....	Hamilton
G. O. Harris .....	Hamilton
D. McNamara .....	Hamilton
D. J. Derby .....	Hamilton
M. N. MacKenzie .....	Hamilton
John C. Lord .....	Hamilton
T. R. Lord .....	Hamilton
R. H. Foster .....	Hamilton
G. W. Jones .....	Hamilton
Jack Lowes .....	Hamilton
W. M. Keenleyside .....	Hamilton

### EXAMINATION RESULTS

S. McFarlane .....	Hamilton
G. B. Sparling .....	Hamilton
D. A. Curry .....	Hamilton
Norman Rainvasser .....	Hamilton
G. H. Walsh .....	Hamilton
L.A.C. Gibson, B.B. ....	Scoudouc, N.B.

### ACCOUNTING II

T. G. Ballantyne .....	Toronto
S. W. Duxbury .....	Toronto
D. Davidson .....	Listowel
L. Simenton .....	Hamilton
H. H. Garfield .....	Vancouver, B.C.
C. W. Jones .....	Hamilton
W. W. Henderson .....	Hamilton
P. T. Hadden .....	Hamilton
J. Mannheimer .....	Hamilton
Barbara West .....	Hamilton

### FUNDAMENTALS OF COST ACCOUNTING

S. H. Wilkins .....	Hamilton
N. R. Wilson .....	Hamilton
W. W. Henderson .....	Hamilton
A. G. Levan .....	Hamilton
S. Oue .....	Hamilton
Ruth Harte .....	Hamilton
H. Llewellyn .....	Hamilton
R. W. McKenzie .....	Hamilton
T. Yoshida .....	Hamilton
N. J. C. McKinnon .....	Vancouver
F. B. Thickett .....	Toronto
C. C. Livingstone .....	Toronto
J. A. Hourigan .....	Toronto
T. G. Ballantyne .....	Toronto
S. W. Duxbury .....	Toronto
B. Grant .....	Fort William
R. W. Stark .....	Renfrew
J. D. Lowry .....	London
T. J. Howe .....	Windsor
R. G. Steel .....	Windsor
C. W. Jones .....	Hamilton
Cpl. Nelles, R.G. ....	Calgary
J. Bracewell .....	Hamilton
R. McFarlane .....	Burlington
S. Butler .....	Hamilton
W. J. Jones .....	Hamilton

### ADVANCED COST ACCOUNTING

N. B. Mathewson .....	Toronto
K. C. Hume .....	Toronto

### COST AND MANAGEMENT

J. A. Hourigan .....	Toronto
G. Mason .....	Toronto
R. McLaughlin .....	Toronto
Miss L. M. McEachern .....	Hamilton
W. F. Earle .....	Toronto
R. S. McClintock .....	Toronto
B. M. Smith .....	Toronto
H. E. Adams .....	Hamilton
S. R. Nicholson .....	Toronto
W. H. Huck .....	Toronto
A. MacLean Thornhill .....	Toronto
F. Wilkinson .....	Toronto
W. J. Stookes .....	Hamilton
S. Oue .....	Hamilton
F. C. Ritcey .....	Hamilton
L. W. J. Robertson .....	Hamilton
J. Bracewell .....	Hamilton
J. D. Lowry .....	London
L.A.C. Spearman, A.E. ....	Aylmer
N. R. Barfoot .....	Galt
Cpl. Nelles, R.G. ....	Calgary
W. J. Jones .....	Hamilton
G. J. Lawrence .....	Hamilton
N. J. C. MacKinnon .....	Vancouver
R. C. Forbes .....	Windsor
H. T. Henderson .....	Windsor
Andrew Padmos .....	Windsor
J. A. Copland .....	Windsor
J. C. Clancy .....	Hamilton
S. Butler .....	Hamilton

### INDUSTRIAL ORGANIZATION AND MANAGEMENT

Miss L. M. McEachern .....	Hamilton
Miss I. M. McEachern .....	Hamilton
H. E. Adams .....	Hamilton
L. Simenton .....	Hamilton
K. Rusk .....	Hamilton
G. J. Lawrence .....	Hamilton
F. C. Ritcey .....	Hamilton
W. J. Stookes .....	Hamilton
L. W. J. Robertson .....	Hamilton
W. J. Jones .....	Hamilton
J. Bracewell .....	Hamilton
A. Padmos .....	Windsor
J. A. Copland .....	Windsor
H. T. Henderson .....	Windsor
E. R. McGee .....	Windsor
Cpl. Nelles, R.G. ....	Calgary
R. S. McClintock .....	Toronto
R. McLaughlin .....	Toronto

## WAGE SYSTEMS

G. Mason .....	Toronto
C. W. Ray .....	Toronto
C. W. Kindree .....	Ottawa
J. C. Clancy .....	Hamilton
S. Butler .....	Hamilton
J. C. Hutcheson .....	Hamilton

## Wage Systems

By Eric Austin Trigg

The system of wage payment, in any industrial establishment, has an effect upon many factors. The earnings of the workers are vitally affected, as are the costs, the quality and volume of production, and so, ultimately prices and general economic conditions.

While Job Analysis and Evaluation are used to handle the setting of general wage levels and fixing just wages, it is the system of wages that determines the deviations from such wages in the interests of the more efficient workers. The wage systems, determining differential wages, have an effect upon the position of workers and employers and, through them, upon the economic well-being of the community. A study of wage systems is a study of the efficient, economic ways of rewarding labour for the part it plays in production. Throughout wage systems the attempt is made to avoid, or reduce, "wasted wages". That is, wages paid where they really ought not to have been. By Job Analysis and Evaluation general price levels, which are just may be determined, but improper handling of these general price levels may result in considerable wastage in the form of excess wages.

Since the earliest days of factory production the simplest method of wage payment, and the one which has prevailed over long periods in many areas, has been based on time. This system has seen wide usage, but has been severely criticized on the grounds that it does not bring out the full efficiency of the workers when skill is a factor, and that it tends to reduce the product of every worker to the level of the least efficient. Here the problem of waste arises. If the best worker and the poorest worker are paid at the same rate there is a tendency towards uniformity of output, and, therefore, in practice, the difference between the best worker and the poorest worker tends to be obliterated. Devising a plan whereby it is possible to pay each worker in some degree proportionately to his output not only puts the wage cost of a product at a level closer to its actual value, but introduces an "incentive" motive to the men who are in a position to put forth better efforts. It has been shown, by experience, that where "incentive" motives are introduced the work that was in a latent form becomes more active, and shows up in more intensive production, because it is more profitable to the worker.

It should also be pointed out that the system of wage payment has a direct bearing upon manufacturers' costs in that one system brings out higher productivity than does another. Costs of manufacture, whether in the form of wages of labour, or other expense, are spread over the entire product. It is a mathematical certainty that the greater the product ob-

## COST AND MANAGEMENT

tained for a given outlay, the smaller the unit cost becomes. Thus, if productivity in any manufacturing concern can be increased by divergence of the "wasted wages", but at no additional labour cost, it is obvious that unit cost will be lowered. Even where the total wages increase, if the production increases more than proportionately, the unit cost will be lowered. This latter case has been found to be true in practice in many cases. It can be seen that while higher wages benefit the workers it is not at a cost to the general public, because the lower unit cost is advantageous to them.

From the above the conclusion may be drawn, that well operated systems of wage payment have many economic advantages to the whole community. The question now becomes one of determining the best wage system to use. It is interesting to note that in 1928 a table prepared by the National Industrial Conference Board showed the distribution of plants by systems of wage payment as follows:

**Distribution of Plants by Systems of Wage Payments, 1928**

	Plants		Wage Earners	
	Number	Per Cent	Number	Per Cent
Time Wage Only .....	367	30.2	64,861	8.3
Straight Piece Rates .....	599	49.4	413,748	53.3
Piece Rates and other Incentive Systems	146	12.0	211,015	27.1
Special Incentive Systems without Piece Rates .....	102	8.4	87,752	11.3
Total .....	1214	100.0	777,376	100.0

This table shows clearly that at that date Piece Rate systems of one sort or other took up 80% of the workers though only 61% of the plants. Further tables of relationship (see pages 5-10 of "Systems of Wage Payment", N.I.C.B.) show that time wages are more prevalent in smaller plants with piece rate wages dominating the higher employment industries. The use of incentive methods is also seen to increase as does the size of the plant and the numbers being employed.

These figures show the position at 1928. Great changes have taken place since then.

### Day Rate System

The Day Rate System provides for payment to each workman at a predetermined rate per day, or hour, for the time he is employed. In actual mathematical calculation it is merely an application of the following formula:

$$\text{Total Wage} = \text{Hours worked multiplied by rate per hour.}$$

There is constant criticism of this simple system of wage payment, and much of the criticism justifiable, but the fact that time wage payment is still used for more than 50% of the workers in this country shows that it must have some advantages. Too often the criticism of systems of wage payment take no account of the advantages, dwelling only upon the disadvantages of the system.

### Advantages

Where there is personal supervision of the work being done, the time wage system can be satisfactorily applied. Where there is little supervision it is the natural instinct for workers to "let up", if they know the

## WAGE SYSTEMS

wage will be paid anyway. It is shown by the 1928 tables, old as they may be, that the time wage system prevailed in the smaller industries where personal supervision was possible. In these cases, the constant supervision keeps the men at their work, and the production is kept at a high peak by the best efforts of all workers.

Then again, it may be easily applied to classes of labour where skill and careful performance are more important than time, or where work is a function of time, rather than output. A worker, knowing his wage is certain, can put all of his skill and care into his work without the pressure of hurried work. Better quality production may be achieved because of this knowledge. There is not the strain of trying constantly to turn out more and more, with the resulting fall in quality of the work done.

There is also, from the worker's point of view, the security of knowing that certain wages are coming his way. It adds to the better state of mind of the worker, and gives him a certain stability which may be lacking in the straight piece-rate methods.

These arguments are not very strong, it is admitted, when faced against many of the disadvantages, and it is for that reason that incentive methods have been developed.

### Disadvantages

In criticism of the system of time wage payments one of the first points to arise is that time wages are said to imply high costs. The workers at any given process, due either to differences in their individual capacity, or to training, experience, or in their attitudes towards their work, differ from one another in their production. If, with any group of workers the same time rate is used, and if each produces according to efficiency, the product of the least productive worker will be more costly than that of the most productive worker. Where the more efficient workers are not given added incentive to produce they will remain content with smaller production than that of which they are capable, and the output of the whole group will be less. The labour cost of production may, therefore, be higher than would be the case if each worker were paid in accordance with his accomplishment.

Running closely allied to the criticism that the time wage system implies higher costs, is the second criticism, that it also implies low production.

The time wage system tends to cause a certain degree of laxity on the part of the more efficient workers, while failing to stimulate the productive efforts of those workers who are less efficient. Working under a flat rate is no inducement to greater effort, but is rather a temptation to slow down production. This is often the case and the result is a loss of potential production as well as higher costs per unit of output. There is a constant gravitation on the part of all workers, under this system, to the level of production of the least efficient worker. It is the old story, of men not wanting to do any more than the next fellow, unless they are compensated accordingly. Men, as long as they can hold their jobs, will do as little as is necessary. In the language of the economists, the average production, under the time wage system, gravitates towards, and is governed by the production of the marginal workers.

The whole fault of the time wage system, to my mind, is that it allows

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the worker to adjust his work to suit his pay rather than having the employer adjust the pay to match the work done.

It is because of these criticisms that incentive methods have been introduced into the time wage system. The incentive methods, several of which will be discussed in detail later, take definite and continuous notice of the amount of the output of each worker and his compensation is based, in full or in part, directly upon his accomplishment as an individual or as part of the group to which he belongs. Incentive methods take account, not only of the number of hours put in, but also of his hourly or daily record of work.

It should be remembered when criticizing a time wage system that the tendencies towards higher costs and lower production mentioned above are not economic laws. Many men, instinctively produce to the best of their ability. They have an instinctive pride, and quite naturally, too, in their skill, and in the work they can do. Men get personal satisfaction out of doing a job well, and like to prove themselves the better workers just for purposes of personal satisfaction.

Another stopper, in the "gravitation towards the level of production of the marginal worker", is the promise of advancement and promotion. This will keep men from dropping to too low a position in efficiency relationship, for if they have any ambitions they will realize that a high productive level is the only way to advance. However, this does not eliminate the fact that men tend to do less under a time wage system, with no incentive motive, than under other, better systems.

### General Considerations

Productiveness in industry is not linked exclusively to any system of wage payment. No system of wage payment of itself will necessarily produce either efficiency or inefficiency. Faults found in the time wage system may not be due to the system itself, but to the general administration of the system. Under a time wage system it is very important that the men selected for work are those who have high working capacities. An hourly wage is being paid, and in order to get full value high grade workmen must be hired.

In many discussions of time wage systems it is considered a matter of course that all workers in a given occupation receive the same wage. "In a given occupation" means merely a job title and this shows one of the weaknesses of this time wage system. All of the men in a certain group are paid similarly, and little account is taken of the possible superiority of some of the workers over the others. Where the time wage is the same for the "actual work done" the situation is being properly handled, but this is seldom the case.

When ideas for incentive methods were first put forward there were many who opposed the very thoughts of them. They claimed that the worker's contribution to the product could not be measured in terms of physical units. The claim was that it was close to impossible to define precisely the amount of work done and, therefore, it was useless to consider incentive methods. The ideas varied, and it was admitted that some work might be judged on a quantity basis and paid accordingly. It is seen, by the previous discussion on Job Analysis and Evaluation, that the individual worker's contribution can be measured, and the pay arranged accordingly.

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It need hardly be mentioned here that any argument used for incentive systems must be considered in the light of whether conditions permit the use of such systems. No incentive system should be considered as a complete changeover from the time wage system, but should be considered as a modification, or adjustment, by which better ends are achieved. Any system suggested must prove itself applicable to the given conditions, and must also prove that its adoption will be beneficial to all concerned.

Most people seem to consider that the most important single reason for adoption of other systems than the time wage, is "to increase production". This would imply an increase in production while still using the same plant, equipment and labour force. The object would be to utilize with greater economy the factors of production already on hand. "To increase production" is taken in conjunction with the attempt "to reduce costs". If the same factors of production are used to better purpose, and the production is increased, the unit cost is proven, arithmetically, to be less.

The second benefit of incentive systems is to give the workers a better chance to increase their earnings. Some people seem satisfied, however, if the costs of production can be cut at no definite loss to the labour force, yet with no consideration of a betterment of their wages.

It would seem, then, that incentive systems bring out higher individual productivity, and insure an optimism of effort on the part of the labour force. When production is pushed to this maximum point, the output is much more easily controlled. The time wage system leaves room for some laxness and a varied production, from one period to another, results. Time wage systems are lax in many respects, but proper selection of employees, and close supervision of the work done, make it possible to do away with inefficiency. Where this elimination is not possible in the ordinary time wage system, the use of incentive systems is profitable and generally results in increased production.

In the final analysis, it is time which stands as a basis of all remuneration. Time, in conjunction with the amount produced, determines the final wage. Under piece-work systems a certain amount of work is expected to be done in a given time, and, while the remuneration is based upon the number of pieces made, if the amount done does not measure up to expected standards the old workers will be replaced by new workers. While the amount produced under time payments is important, the time taken for a definite amount of piece work is important, too. It is noticed that the only method of comparing piece wages in different occupations is by putting them on a time basis. It is only on the basis of earnings that wage rates under incentive systems can be compared with time wages.

All incentive systems are, in essence, adapted from the time wage system. Their value can only be measured in reference to the time wage. It would be impossible to introduce these systems if they did not assure the worker a compensation at least as good as the time wage, if not better. The time wage is the standard of value about which the incentive systems show their worth. As the study of the various incentive systems is pursued, the connections between them and the time wage systems will be brought more clearly to the fore.

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### Piece Wage Systems

The reasons for, and the many advantages of incentive systems have been briefly outlined in the preceding discussion. The first incentive system thought of was, and still is, payment by the job, or by the piece. The essence of the piece work system is that the workman is paid for the amount of work done, rather than for the time taken doing it. If the output is large, the reward is large; if small, the reward is correspondingly small. The reward varies with the product. The usual method is to establish rates for the various operations essential to production. These are usually set so that an average man, working at normal speed, receives the same pay as he did under time payment. If he works harder and the result is a greater production of goods, his pay rises in proportion to the extra amount done. This gives the worker more pay, and the employer a greater total produce. Under the ordinary piece work system no minimum hourly wage is guaranteed.

A change from time wage system to piece work system is found, generally, to result in an increase in production. While manufacturers' direct costs are not reduced, the total cost is. The more proficient workers increase their earnings in all cases, and the higher the piece rate is, the greater becomes the number of workers who increase their earnings. At the same time, if the rate is less than that based on the production of the lowest grade workers employed, some of the workers will suffer a loss of income, and this number will increase as the piece rate is lowered. With the piece work system the employer can set the amount of direct labour going into the total unit cost and thus adjust his total cost to suit himself, within certain limits.

Products differ, and can not be compared directly per unit in regard to the kind, quality, and quantity of labour involved in their production. For this reason piece rates must be specific and can not be general. Some rates are identical, but this is merely a matter of chance, not design. As a rule, the piece wage system must be confined to clearly defined uniform products, produced under uniform conditions.

### Advantages

The advantages of the piece work system have been summed up, to some extent, in the preceding discourse. The definite advantages which should be mentioned are the increases in production, and the reduction in unit costs, which are seen to be direct results of the piece wage system. In a survey conducted by the National Industrial Conference Board, it was seen that production increases varied between 10% and 400%, while the mid point of the series was 30%. At the same time, earning increases varied between 10% and 100%, with the mid point of the series at 25%. Unit costs were shown to have a varied reduction between 10% and 50%, with the mid point at 21%. These figures show that the belief that production would be increased and unit costs decreased have strong foundations, and are absolutely true.

Another consideration is the effect upon worker morale. A chance to increase earnings naturally results in the creation of a busier, and more satisfied, working force. The added chance to increase earnings is quite apt to lead to better co-operation of the workmen in introducing improvements, and eliminating unnecessary movements. If the worker realizes

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that his earnings will increase with his production, he will be constantly on the lookout for better ways of doing the job, so as to reduce the time taken, while at the same time keeping his quality of work up to the required standards.

When the piece work system is used there is usually a much smaller labour turnover. The increased earnings and the new incentive to work, keep the labour force on the job, and make them want to stay there.

The final advantage of this method, and the best, from the accountant's viewpoint, is its aid to cost calculation. The direct labour cost per unit becomes a fixed amount. Any part of cost being fixed is a big help, but direct labour is very often one of the biggest factors in total cost, and having the amount of direct labour per unit fixed is of great value.

### Disadvantages

The greatest difficulty to be faced in a piece rate system is the fixing of the original rate. Great care should be taken to make it just for all concerned, or there is apt to be a considerable degree of rate cutting. The practice of rate cutting has been followed to such an extent in the past, that the installation of a piece rate system has often been viewed as labour exploitation. The original rate needs careful consideration. If the earnings jump to too great a degree, it is thought by the employers that they were set too high and should be cut. Workers very often keep close watch on the rates. They produce only enough to guarantee them a good wage and stop there for fear the rates will be cut. They have to keep a middle road because slow work means small pay, while fast work means rate cutting. If the original change from time to piece rate is made so as to effect a lower total pay on the accustomed production there is an immediate complaint by labour that their wages have been reduced. Thus the difficulty is one of setting the right rate and being sure it will not be too low to begin, or too high, necessitating a reduction later.

Another problem is the fact that once the workers have become accustomed to certain rates they are apt to resist any technological improvements which might necessitate rate modifications. There is hostility to any move which might effect the security which the worker has gained.

Where there are unavoidable interruptions such as breakdowns in machinery, change-over on jobs, defective materials, or complete lack of orders, the worker finds his income cut off completely. Many plants, working under the straight piece work system, change over to the time wage rate when there is no work available.

Piece work systems are apt to turn the efforts of the workers from quality production to quantity production. In general, these two factors bitterly oppose one another. If quality is obtained, the quantity drops, and if quantity is obtained, the quality is not as good. Strict inspection is essential if quality work is going to be obtained. Some plants found that, under the piece rate system, a better grade of work was done on the whole, as well as a greater production. This was mentioned especially where rigid inspection was carried out.

The fact that no minimum wage is guaranteed is regarded as one disadvantage, while there is also the argument that the piece work system leads to overuse of men and machinery, which in turn lead to sickness and breakdowns.

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It is generally believed that the piece rate should only be used where it is justified by the need of increased production. Where the output under time wage system is sufficient to the business of the company it is felt that the change-over, while it might result in new efficiency, would not be worth the trouble it might cause. There is also the case of a company with, let us say, a hundred different machines. This company, due to market competition, would have to modify the pieces it produces over a certain period of time. This constant modification would necessitate the establishment of new piece rates each time, and would probably not be justified by the production requirements of the piece under consideration. This leads us to the proper deduction, that for piece work to be worthwhile it must be applied to work which is repetitive and where the quantity of production is large. Where there is a change of men on one job to another job, or a change in materials, or machinery used, it is only with great difficulty that a piece rate system can be established.

In general it would seem, then, that while the piece rate system has many advantages over the straight time wage system, it too must be modified if it is going to encompass all of the jobs for which wages must be paid. It is because of this obvious necessity that further incentive systems have been introduced, and are constantly being introduced.

### Incentive Methods

The preceding discussion serves to show us that, while the time wage, and piece rate systems have many advantages, there are also many inherent disadvantages to both of them. These disadvantages indicate a necessity for further improvements to give added incentive to the workers.

Incentive methods vary from straight modifications of the time wage system, to combined time and piece rate systems, and modified piece rate systems. The more general type of incentive method is a modified piece rate system with guaranteed time earnings. The attempt is made, generally, to have each worker reach his highest standard of efficiency by proportional payments for work above a normal level. Incentive methods bring a lowering in the cost of production and, except, in the case of the Taylor "Differential Piece Rate" System, involve no loss of earnings for workers who produce less than the normal or standard output upon which the system is based.

Such systems are not in accordance with strict job evaluation and to some extent may be justifiably considered unsound, but to the labour force they are much more acceptable than methods which might result in reduced earnings for a number of their members.

### Halsey System

This system dates back to its installation in the factory of the Canadian Rand Drill Company, by Mr. F. A. Halsey, in 1891. It is a system by which the worker receives his regular time wage and is offered, in addition, a premium for increased production over a stated normal day's work. It does not attempt to measure possible output, but is based solely on present production.

The Halsey system assumes that the present production is a fair average, and offers a share of any additional earnings, to the workers involves where a job is done in less time. Each job has a time limit set. This time limit is not reduced, but is taken as the time in which the job can

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be done with little difficulty. This time limit is guaranteed by the employer and he guarantees, further, that no changes will be made in it, except where there are definite changes in methods of manufacture. The one additional guarantee which he makes is that, even if the standard set is not fully attained, the worker involved will be paid his full hourly rate.

Now, where the job is performed in less than the normal time allowed, the additional earnings are in the form of a premium, which is equal to a certain percentage of the time saved on the job. This premium is paid in addition to the regular hourly rate. The actual amount of the premium percentage depends upon both the job and the policy of the company concerned. The usual plan, under the Halsey system, is to pay between a 30% and 50% premium. The premium must of necessity, be set at a point which will have a real stimulating effect upon the efforts of the workers.

The system leaves two policies from which to make a choice. Either the standard can be high, with a high percentage premium for betterment of the standard, or the standard can be low, with a low percentage premium. The high standard with high percentage premium has been the more popular method of the two.

The Halsey system has its chief advantage in that it retains the time wage system. It is a straightforward method which gives every worker above average efficiency a chance to earn a bonus in proportion to his ability. It is a simple system, in that it requires no complete readjustment, but is based on existing rates. All of its changes are of a beneficial nature to the worker, while the establishment of a percentage premium leaves the employer in a position to produce more, at a profit to both himself and his workers.

The system is so simple, that, once the percentage is established, the workers can calculate their own premiums, and make sure that they get all that they should. Its simplicity is further evidenced by the fact that it can be adopted at little or no cost for the process of changing over. It requires no intensive analysis, but accepts existing conditions and fits the system in with them.

The Halsey system has been criticized in several ways. Critics say that under this system the employer is taking some of the worker's "true" earnings. This criticism forgets that there is additional wear and tear, quicker general depreciation, and heavier overhead in total. Employers are apt to be a little dubious about this system, too, feeling that the methods of setting the original rate permits too much chance of their losing out. However, time studies, properly carried out, can completely erase this difficulty.

In nearly all plants the results of the adoption of the Halsey system showed that 70%-100% of the employees were able to earn a bonus. Under this system there is little or no ratecutting.

The system is flexible and may be easily introduced. It does not however, remove the difficulty of quantity replacing quality. There is still a need for close inspection.

On the whole, the Halsey System has proven both easy to apply, and well worth applying. It results in increased production, lower unit costs, high earnings, industrial harmony, and stimulated general effort.

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### Rowan Variation

The Rowan Variation of the Halsey system was introduced to alleviate the payment of excessive premiums, caused by the improper establishment of the normal piece rate. The argument is that the maximum increase in output due to any incentive system can be no greater than 50% over the original production. Any apparent increase above this is due to the fact that the original standard was set too low. To counter this, for production beyond this point the allowance is proportionately reduced.

The use of a flat percentage, for the calculation of the premium, is abolished. It is replaced by the variable percentage equal to the ratio of time saved to the normal output. That is, the percentage is one of the output above normal. If the worker saves one-third of his time, produces one-third more than the ordinary output, his percentage is  $33\frac{1}{3}\%$ . Similarly, if he produces one-fourth more than ordinary, his percentage is 25%. A further qualification is that, instead of the percentage being applied to the hourly pay for time saved, it is applied to the time actually taken. Thus, the less time an operator takes, the greater his percentage rate, but the smaller the principal sum to which it is applied.

The net result is to give the premium a perverted elasticity. While in the Halsey system, the premiums per unit of work increase regularly with the efficiency of the worker, in the Rowan variation, it is in the lower grades of efficiency that the premiums per unit of work are higher. The Rowan variation gives more incentive to the less efficient workers.

(To Be Continued)

## Cancellation Procedure in an Electrical Products Manufacturing Company

By M. C. COUTTS, R.I.A.

In the electrical products manufacturing industry the problems on the cancellation or reduction of a sales order are numerous and complex. The principles and the general outlines of the procedure are no doubt the same in any industry but the detailed procedure followed in our company will apply only in the main to other companies in which materials and parts are both fabricated and assembled and in which there are many common parts and materials. Since it is believed that there are many companies with problems similar to our own the procedure in use in the Sangamo company is outlined in this article.

The problem has been with us now for more than a year. Early in 1944 the work reached such proportions that management action was necessary to provide a solution to the problem. Policy-wise it was decided that the processing of a cancellation would be decentralized throughout our functional organization, that it would be handled generally in the same manner as we would a regular customers order, that an area in stores would be set aside under lock and key into which the cancelled goods would be "shipped" and that a Standard Practice would be established outlining the detailed procedure. This then meant that each department would do those things connected with cancellation which were most closely related to their regular activities. In this way it was hoped that the cost of handl-

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ing the cancellation would be at a minimum. This policy has now been followed for nearly a year and the results have been quite satisfactory.

Under this policy the Sales Department receiving the customers order issued a Customers Order Change Notice to the Factory authorizing them to either cancel or reduce the quantity of particular specifications on the original order as directed by the Customer. At the same time the Order Section of the Sales Department issues a Cancellation Control Order to all departments concerned, including factory time keepers, the payroll department, the general accounting department and the cost department. The purpose of the Cancellation Control Order is to give time keepers and department heads a Cancellation Control number against which the time involved in processing the cancellation by the various individuals is to be changed. In this way actual costs are obtained for Post Termination charges since these costs are backed up by labour tickets for the people working on the cancellation.

Upon receipt of the Customers Order Change Notice the Cancellation Officer under the direction of the Production Control Manager starts to work. For the particular Sales Order involved he obtains the Bills of Materials and Plan Sheets originally used in planning production of the items involved. From these he ascertains the Purchase Requisitions issued to the Purchasing Department and the various shop orders planned for the fabricating and assembly divisions of the shop. Purchase Order Revision Requests are issued immediately to the Purchasing Department for each Requisition originally issued and now desired to be changed. Likewise "Stop Production Orders" are issued to the Control Centres throughout the shop as instructions against the various shop orders previously issued. Forms are provided to be used in conjunction with the original Bill of Materials and Plan Sheet so that each step in this procedure may be recorded and followed up. In this way the date on which each step is taken is available for any check or investigation.

The procedure in the above paragraph may sound simple and in some cases it is. However, in the majority of cases in our company to date the job has been such as to require considerable good judgment combined with accuracy and speed on the part of the Cancellation Officer. This has been due to the fact that, to date, most cancellations have really been quantity reductions; likewise two or more customers orders have frequently been combined in the original planning and in some cases parts have been ordered for stock to allow for rapid repair on items returned by customers.

The Manager of the Purchasing Department takes action on the Purchase Order Revision Requests and makes a settlement with each supplier and subcontractor. Where necessary the Factory Accountant is called in to assist in obtaining the information required for checking a claim. With subcontractors the Purchasing Department arranges for the return of materials supplied by ourselves. In some cases materials ordered may be disposed of without loss and, where possible, this is arranged for by the Manager of Purchasing. In the majority of our cases the cancelled materials are sent in and placed in quarantine stores; in some cases however arrangements are made for the supplier to store the goods until we received disposition and clearance from our customer.

Dispatchers located in Control Centres throughout the shop and work-

## COST AND MANAGEMENT

ing under the Production Control Manager take action on the basis of the Stop Production Order. Any orders not yet started by them are withdrawn from the files and returned to the Cancellation Officer. The Cancellation Officer withdraws the material held for these orders from stores and places it in the "Quarantine Stores" through the use of a regular Material Requisition Form. Orders in process of manufacture are stopped and accumulated under the supervision of the various dispatchers. The goods are checked by inspectors for quantity and operations completed and these noted on the Identification Tickets attached to the parts or material. At the same time the Inspector tags each lot of parts with a Cancelled Order Tag to avoid the possibility of any further work being done on the parts and at the same time to provide for thorough identification in Quarantine Stores. All goods thus accumulated in the shop is checked by the Cancellation Officer with his list of Shop Production Orders and taken, under his direction, to the Quarantine Stores.

Hence by following through on each Stop Production Order and each Purchase Order Revision Request the Cancellation Officer ascertains the inventory position and supplier cancellation charges for the contract. From this information a statement is supplied the Cost Department showing the various inventory items, their quantity and operations completed and the various suppliers and purchase orders on which cancellation charges have been received.

The above statement is costed by the Cost Department and the total of the handling charges accumulated by the Payroll Department, under the Cancellation Control number, is obtained. From these the Sales Department in conjunction with the Comptroller make up the final charge to the customer on the forms specified by the Department of Munitions and Supply.

The procedure outlined above takes some time on any assembly involving several hundred parts but where a reduction in quantity is called for we are unable to see how any short cut can be made. This has been found particularly true in several of our cases due to reinstatement at a later date. In this case failure to have the parts properly inspected, identified, tagged and stored means a tremendous loss in time and in many instances unaccountable loss of parts.

Occasionally cases come up requiring attention other than that outlined above such as for instance with tools. Depending upon how the tools have been ordered depends our procedure for dealing with them. Over the past few years most of our orders have been separate for the tools and for the units. In this way cancellation of the tool order is separate and since the design, purchase, manufacture and control of tools is under our Methods and Tool Department a separate Customers Order Change Notice from the Sales Department provides them with the directions necessary to stop work on the tools concerned.

The procedure has the one advantage of at least being able to trace back step by step from our final figure to the time tickets, the invoices and the physical items making up the claim. Where the claim is subject to audit we feel that the work involved will more than pay for itself due to the rapidity with which the checking can be done.

**COST AND MANAGEMENT  
EXAMINATION QUESTIONS  
ACCOUNTING 1 — MAY, 1944**

**Question 1. (12 marks).**

The following figures are taken from the preliminary trial balance and the adjusted trial balance of Black & Son at December 31, 1943. You are asked to submit the adjusting journal entries which had been made.

	Trial Balance Before Adjustment	Trial Balance After Adjustment
Accounts Receivable .....	\$192,000.00	\$189,000.00
Heat .....	840.00	690.00
Interest Income .....	1,660.00	2,820.00
Bad Debts Expense .....		3,000.00
Coal Inventory .....		150.00
Accrued Interest Receivable .....		1,160.00

**Question 2. (12 marks).**

On February 1, 1943, John Smith drew a bill of exchange for \$5,000 at two months after date on William Robinson. Robinson accepted this bill on February 2, and on February 3 Smith discounted the bill with his bankers at 6 per cent. per annum. The bill was dishonoured on due presentation for payment, but the next day Robinson paid Smith \$1,000 on account and gave him a promissory note payable at six months for the balance of the account, plus 5 per cent. per annum interest.

Give in journal form the entries which should be made in Smith's cash book and ledger to record the foregoing transactions.

**Question 3. (20 marks).**

(1) From the following figures of Jones & Co. for the twelve months to January 31, 1944, prepare, in columnar form, a statement of gross trading profit by departments and for both departments combined

Inventory, Feb. 1, 1943: Grocereria, \$6,872.15; Meats and Fish, \$1,421.16.

Purchases for year to Jan. 31, 1944: Grocereria, \$116,923.99; Meats and Fish, \$85,561.03.

Sales for year to Jan. 31, 1944: Grocereria, \$135,724.75; Meats and Fish, \$117,861.36.

Inventory, Jan. 31, 1944: Grocereria, \$5,491.05; Meats and Fish, \$2,052.17.

(2) Compute for each department and for both departments combined the percentage (correct to one decimal place) of gross profit to sales.

(3) Describe the procedure to be followed by Jones & Co. in determining the net trading profit of each department.

**Question 4. (12 marks).**

In respect to each of the following errors you are required (a) to give correcting journal entry, (b) to indicate the effect of the correction of the error on the net profit.

(i) A remittance from a customer of \$24.75 in settlement of an account receivable was entered correctly in the cash book but posted from there to the credit of cash sales.

(ii) An invoice for \$240.07, merchandise purchased, had not been passed through the books though the goods were included in the closing inventory.

(iii) A charitable donation of \$125.00 to the local Y.M.C.A. (which was a customer of the business) had been posted to the debit of "Y.M.C.A. Account Receivable".

## COST AND MANAGEMENT

(iv) A delivery truck had been purchased for \$1,600 and charged to Buildings Account.

Question 5. (12 marks).

Explain the nature and method of operation of each of the following:

- A controlling account for accounts receivable.
- A purchase book.
- The imprest system of petty cash.

Question 6. (32 marks).

On January 1, 1944, the state of Tom Smith's business was as follows: Cash in bank, \$3,506.25; merchandise inventory, \$4,100.00; accounts receivable—A. Burk \$1,003.75, B. Downs \$752.50, C. Kent \$3,207.50; accounts payable—D. Lanks \$2,252.50 and F. Young \$807.50.

You are required:

- To set out the opening balances on Tom Smith's ledger on the above date.
- To journalize the following transactions.
- To post the journal entries to the ledger.
- To take off a preliminary trial balance at the month end.
- To submit adjusting and closing journal entries at the month end.

Note: Tom Smith does not operate controlling accounts for accounts receivable or payable. He deposits all receipts and makes all payments by cheque.

Jan. 3	Paid rent for month of January .....	\$ 302.50
	Received cheque from C Kent .....	\$2,170.00
	Allowed discount in addition .....	37.50
		————— 2,207.50
6	Paid for wrapping materials .....	26.25
7	Credit sale to C. Kent .....	1,315.12
8	Received cash for a debt previously written off as bad .....	155.67
	Bought merchandise on credit from D. Lanks .....	500.00
10	Received cheque from trustee in bankruptcy of A. Burk .....	250.00
	Wrote off balance of his account as a bad debt .....	753.75
11	Cash sale .....	25.00
13	Drew bill of exchange on C. Kent and received his acceptance .....	1,000.00
15	Credit sale to C. Kent .....	415.47
17	Paid to D. Lanks .....	\$1,240.00
	Discount allowed in addition .....	12.50
		————— 1,252.50
20	Received cheque from B. Downs .....	740.00
	Allowed discount in addition .....	12.50
		————— 752.50
21	Bought merchandise on credit from G. Notts .....	1,289.64
22	Paid F. Young .....	790.00
	He allowed discount in addition .....	17.50
		————— 807.50
	Sold merchandise on credit to B. Downs .....	1,121.14
24	Paid D. Lanks .....	980.00
	Discount allowed in addition .....	20.00
		————— 1,000.00
28	Sold merchandise on credit to B. Downs .....	350.00
31	Paid wages for the month .....	348.17
	At January 31 the merchandise inventory amount to \$4,660.51.	

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